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ABSTRACT

This monograph presents an overview of the characteristics of public postsecondary institutions in regions around the country, provides information on their funding, enrollments, and offerings in occupational education, and directs attention to some of the characteristics of their student populations. Postsecondary occupational education is supported by the United States Office of Education, Division of Vocational and Technical Education, in postsecondary technical vocational schools, community or junior colleges, universities or colleges, and combination secondary-postsecondary vocational technical schools. In 1966 there were 1,020 institutions with two-thirds solely involved in 2-year postsecondary programs. There is great variation among states in the amount of cost to the student as well as in the extent to which state, local, and private sources of financial assistance are available. Also, there is not a consistent national pattern of the availability of job placement services. Students entering postsecondary occupational programs come from high schools, colleges, and industry. Variations in the systems need to be examined in order to determine if some programs are superior, and more complete data are needed on the demographic and social characteristics and academic backgrounds of students. (SB)

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PUBLIC POSTSECONDARY OCCUPATIONAL EDUCATION IN THE UNITED STATES

CHARLES V. MERCER

DEPARTMENT OF SOCIOLOGY AND ANTHROPOLOGY

Center Monograph No. 3

CENTER FOR OCCUPATIONAL EDUCATION

NORTH CAROLINA STATE UNIVERSITY AT RALEIGH

1969

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IN THE UNITED STATES

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CENTER MONOGRAPH NO. 3

CENTER FOR OCCUPATIONAL EDUCATION

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1969

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PREFACE

This monograph, the third in the Center series, presents a synthesis of available information on a number of aspects of public postsecondary occupational education in the United States today. Because it is a synthesis, and not merely an enumeration of statistics and bibliographic information, it provides the reader with a coherent overview of a whole range of subjects in the area of postsecondary occupational education. This material, combined with the excellent bibliography provided with the text should enable the reader to pursue any special topic he desires in great depth. Its value as a sound foundation for further study will be easily recognized.

In a concise form, Dr. Mercer has presented an overview of the characteristics of public postsecondary institutions in regions around the country, provided information on their funding, enrollments, the nature of their offerings in occupational education, and directed attention to some of the characteristics of their student populations. Within these contexts, there arise both explicit and implicit suggestions for the nature of the future research necessary to answer some broad questions about occupational education in general. One fact expressed most clearly in this report is the unfortunate shortage of published research in the area of public postsecondary occupational education. Hopefully, one result of this paper might be the stimulation of other researchers along lines designed to fill in the many gaps in our present knowledge.

The Center would like to extend its appreciation to the members of the panel who reviewed this monograph for publication:

Dr. Bob E. Childers, Executive Secretary, Committee on Occupational Education, Southern Association of Colleges and Schools.

Dr. Charles H. Rogers, Associate Professor of Agricultural Education, North Carolina State University at Raleigh.

Dr. Bert W. Westbrook, Associate Professor of Psychology, North Carolina State University at Raleigh.

Finally, a note of thanks is also due to the many members of the Center's technical staff, without whose assistance this monograph could never have been published.

John K. Coster, Director
Center for Occupational Education

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PUBLIC POSTSECONDARY OCCUPATIONAL EDUCATION IN THE UNITED STATES

Among the more significant developments in education in the United States in recent years has been the growth and development of various postsecondary programs, below the baccalaureate level, designed as occupational education. There are, of course, many interrelated reasons for this growth and development. The increasing sophistication required by an advancing technology has called for a more skilled and knowledgeable labor force than has been needed in the past. The diminishing demand for unskilled and semi-skilled labor with an accompanying increased demand for skilled and technical labor, has meant that successful employment must depend on more education and training than the traditional education system could provide. Not only must people be able to enter the labor market at higher levels of skill and knowledge than has been true before, but they must also have the capacity to develop as technology continues to elevate the demands on labor.

The affluence resulting from the general industrial advances has produced a new level of wealth, both private and public, which has fostered the increasing commitment to education beyond the high school. Some form of higher education is seen as a desired end in itself by ever growing numbers of people. This growth of interest in higher education is not, however, being accompanied by a proportional increase in the number of people who successfully pursue degree programs, nor by a proportional

increase in the ability of traditional four-year colleges and universities to accommodate all those who might wish education beyond the high school.

Historically the educational system was structured in a way implying that there were categories of people who should fit into fixed terminal points. Completion of high school was seen as the probable terminal point for the vast majority, with a four-year degree being the next higher alternative available for a small minority. The junior college movement has served as a partial correction for this situation. The new variable length postsecondary occupational programs should make it possible to more realistically serve the needs of students with varying desires and capacities as well as providing the levels of skill and knowledge needed in the labor force.

In addition to providing a system which is better able to serve the needs of high school graduates, a system is needed which can serve the needs of those who are being made ineffective or "obsolete" by an advancing technology. Few people can enter the labor market with skills which will adequately serve them for a lifetime of employment. Many people need regular upgrading and frequently this upgrading must be seen as a public responsibility.

There are also large numbers of adults who are unable to find employment at a level necessary for an acceptable standard of living. Further, many are employed in jobs which require little or no skill and yield a correspondingly low income. The needs of these people must be met if the emerging systems are to be considered successful.

The Systems of Postsecondary Occupational Education

Under the impetus provided by federal legislation, as well as the desire to serve the needs of people and industry, the individual states have been engaged in efforts to provide adequate systems of postsecondary occupational education. These efforts have taken place with limited precedent and under potentially conflicting sources of guidelines for development. In general, all education beyond the high school has been considered "higher education" and the legitimate concern of state bodies or departments governing colleges and universities, with their strong tradition of general rather than applied education. On the other hand, historically, education specifically intended as job-entry preparation has been the concern of vocational educators in the secondary systems. This has meant that in many states postsecondary occupational education has developed along two or, in some cases, more lines of control. At present there is virtually no evidence which would provide a basis for evaluating the relative merits of the different systems which have been developed.

Postsecondary occupational education is supported by the U. S. Office of Education, Division of Vocational and Technical Education, in institutions which are classified into four categories: postsecondary technical vocational schools, community or junior colleges, universities or colleges, and combination secondary-postsecondary vocational technical schools.[1] In 1966, there were 1,020 such institutions in the United States. Two-thirds of these were institutions solely involved in two-year,

postsecondary programs (postsecondary technical vocational schools and community or junior colleges). Table I presents the distribution by type of school and region, and Table II the percent distributions of types within region. In the United States as a whole there are 6.1 schools per 100,000 population, age 18-22 (estimated), but this varies from region to region.[2] New England and the Middle Atlantic States have 2.8 and 4.4 schools, respectively, per 100,000 potential population while the Mountain and Pacific States have 8.4 and 9.4, respectively. The North Central and Southern States are near the national average.

The previously mentioned variations in the systems of postsecondary occupational education can be noted in the percent distributions in Table II. The majority of schools in New England, the East North Central and South Atlantic States are postsecondary technical vocational schools while in the Western States community or junior colleges constitute the majority. In the other regions there is some distribution among the types with the community or junior college and combination schools most frequently observed.

The cost, to the student, of postsecondary occupational programs varies a great deal from state to state. In Louisiana, for instance, there is no tuition or fees and only a refundable book deposit is required. (All amounts are for in-state students unless otherwise indicated.) In many states (e.g., Connecticut, Hawaii, North Carolina, South Carolina, Virginia), the cost is between $25.00 and $50.00 a semester for tuition with a small additional amount required for fees. The tuition charged

Table I

Public Postsecondary Occupational Education Institutions, by Type, and Estimated College Age Population, for Regions
Fiscal Year 1966

Area	Institution						
	Postsecondary Technical Vocational School	Community or Junior College	University or College	Combination Secondary-Postsecondary Vocational Technical School	Total	Estimated 18-22 Year Old Population (1968)* (1,000's)	Institutions Per 100,000 18-22 Year Old Population
United States	289	385	165	181	1,020	16,771	6.1
Northeast	52	58	14	23	147	3,684	4.0
New England	18	3	2	2	25	904	2.8
Middle Atlantic	34	55	12	21	122	2,780	4.4
North Central	90	83	32	64	269	4,495	6.0
East North Central	83	43	11	14	151	3,174	4.8
West North Central	7	40	21	50	118	1,321	8.9
South	129	103	19	84	335	5,660	5.9
South Atlantic	102	45	8	18	173	2,749	6.3
East South Central	15	17	2	30	64	1,211	5.3
West South Central	12	41	9	36	98	1,700	5.8
West	18	141	100	10	269	2,932	9.2
Mountain	7	30	17	6	60	714	8.4
Pacific	11	111	83	4	209	2,218	9.4

Source: U.S. Office of Education, Vocational and Technical Education: Annual Report, Fiscal Year, 1966 (Washington: U.S. Government Printing Office, 1968), p. 82.

*Based on the Bureau of the Census, Current Population Reports: Population Estimates. Estimates of the Population of States, by Age," Series P-25, No. 420 (Washington: U.S. Government Printing Office, April 17, 1969).

Table II

Percent Distribution of Type of Institution
Within Region, Fiscal Year 1966

Area	Institutions				
	Postsecondary Technical Vocational School	Community or Junior College	University or College	Combination Secondary and Postsecondary Vocational Technical School	Total
United States	28.3%	37.7%	16.2%	17.8%	100.0%
Northeast	35.4	39.5	9.5	15.6	100.0
New England	72.0	12.0	8.0	8.0	100.0
Middle Atlantic	27.9	45.1	9.8	17.2	100.0
North Central	33.4	30.9	11.9	23.8	100.0
East North Central	55.0	28.5	7.3	9.2	100.0
West North Central	5.9	33.9	17.8	42.4	100.0
South	38.5	30.7	5.7	25.1	100.0
South Atlantic	59.0	26.0	4.6	10.4	100.0
East South Central	23.4	26.6	3.1	46.9	100.0
West South Central	12.2	41.8	9.2	36.8	100.0
West	6.7	52.4	37.2	3.7	100.0
Mountain	11.7	50.0	28.3	10.0	100.0
Pacific	5.3	53.1	39.7	1.9	100.0

Source: Table One

goes as high as $140.00 a semester (Kentucky), and perhaps higher, with several other states having tuitions in excess of $100.00 per semester (e.g., Idaho, Massachusetts, and Oregon). Frequently the occupational curriculum does not lend itself to standard term tuition (semester or year) and therefore a number of states charge on a credit hour basis. These charges range from approximately $2.50 to $7.00 per hour. Charges for postsecondary occupational programs are sometimes complicated by the fact that institutions operate with a significant amount of local funding, in addition to federal and state support. Such is the case in Oregon and Wyoming, for example. In such cases, tuition is based on residence in the district of control, in-state but out of district, and out of state. In Oregon, the in-district tuition ranges from $165.00 to $270.00 a year; the in-state, out-of-district, from $240.00 to $337.50; and the out-of-state from, $300 to $600 a year. The estimated average charge for tuition and fees in public two-year institutions in 1968-69 was $121.00 for the academic year.[3] Obviously on the basis of the data from the few states cited there is a great deal of variability around this average.

The U. S. Office of Education listed 2,104 institutions offering postsecondary occupational programs as participants in federally sponsored student assistance programs in 1968-69.[4] The three primary programs, involving institutional participation are the National Defense Student Loan (NDS), the College Work-Study Program (CWS), and Educational Opportunity Grants (EOG). The federal government provides 90% of the funds for NDS, 80% for CWS, and 100% for EOG. Over two-thirds (68.3%)

of those institutions which are participating offer all three programs, while 16.9% offer two of the programs (see Table III). Among the 311 institutions which offer only one program, 154 participate in CWS, 136 in NDS and 21 in EOG. In addition to these three programs, students in postsecondary occupational programs are eligible for loans under the Guaranteed Loan Program.

Table III

Public Postsecondary Occupational Education Institutions Participating in Federally Sponsored Student Assistance Programs, by Region and Type of Program, 1968-69

Region	Number of Institutions Participating in: NDS Only	CWS Only	EOG Only	NDS and CWS	NDS and EOG	CWS and EOG	NDS, CWS and EOG	Total
United States	136	154	21	94	142	119	1,438	2,104
Northeast	34	33	11	20	46	29	369	542
New England	10	10	5	8	19	10	132	194
Middle Atlantic	24	23	6	12	27	19	237	348
North Central	41	34	6	24	50	30	378	563
East North Central	28	23	4	14	32	23	181	305
West North Central	13	11	2	10	18	7	197	258
South	46	51	3	34	40	30	482	686
South Atlantic	23	25	2	15	26	11	233	335
East South Central	16	13	1	7	9	6	114	166
West South Central	7	13	0	12	5	13	135	185
West	15	36	1	16	6	30	209	313
Mountain	2	3	0	3	1	3	49	61
Pacific	13	33	1	13	5	27	160	252

Source: U. S. Office of Education, Financial Aid for Higher Education (Washington: U. S. Government Printing Office, 1968).

There is a great deal of variation from state to state in the extent to which state, local and private sources of financial assistance are available. Several states (e.g., Kentucky, North Carolina and Virginia) have scholarship and loan funds financed out of the states' general revenue. Some assistance is available from private foundations and alumni groups though this is not extensive and tends to be very localized. The available data do not indicate anything on the extent to which available programs are being used nor the characteristics of students using programs. It would be very difficult to judge the adequacy or inadequacy of existing programs in light of the concrete information at hand. However, the impression made by various state publications as well as U. S. Office of Education publications, is that the combination of relatively low cost and easily available assistance programs makes it unlikely that many people are unable to take advantage of postsecondary occupational programs for financial reasons. This, of course, says nothing of the extent to which the potential population is aware of these things, which is probably a much more crucial matter than the issue of cost-assistance.

There does not appear to be a consistent national pattern of the availability of job placement services to students in postsecondary occupational programs. In some states (e.g., Louisiana) there is apparently no systematic program for securing employment for graduates, while in other states each institution has a program not only for finding jobs for graduates but also for finding jobs for students while they are in school. The available information suggests that most postsecondary occupational education institutions are extremely sensitive to the needs of

employers in the areas they serve. This sensitivity increases the likelihood that the programs available to students will be those for which employment is available. This does not, of course, necessarily result in the student's being aware of a full range of opportunity nor does it assure the ideal placement.

The Students

Table IV gives the enrollment figures for 1966 by type of program within region, and Table V the percent distribution of programs within region. Although traditionally vocational education has tended to have a concentration in agriculture and home economics, these two areas account for just under two percent of the total national postsecondary enrollment. The Middle Atlantic States have the highest combined enrollment in these categories, with 7.2 percent. Distributive occupations are the third smallest category with no region having a large percentage of its enrollment in this area. The health occupations show a variation among regions with a fairly large percentage in New England (21.7 percent), and the East South Central States (28.0 percent), but fewer than four percent in the Pacific States. Office and technical courses constitute a consistently high percentage of enrollment across all regions with the exception of the East South Central States where the office category accounts for only 14.5 percent of the enrollment and the Pacific States, where the technical category accounts for only 13.3 percent of the enrollment.

Table IV

Enrollment in Public Postsecondary Occupational Education Classes, by Program and by Region, Fiscal Year 1966

Area	Agriculture	Distributive	Health	Home Economics	Office	Technical	Trade and Industry	Total
United States	5,837	15,741	36,245	2,652	164,896	99,727	115,393	440,491
Northeast	2,031	1,720	6,737	610	15,166	14,371	2,290	42,925
New England	181	65	1,893	---	2,113	3,244	1,215	8,711
Middle Atlantic	1,850	1,655	4,844	610	13,053	11,127	1,075	34,214
North Central	1,010	3,691	8,305	673	24,505	15,830	17,797	7[illegible]311
East North Central	854	3,083	5,989	667	21,116	11,806	12,577	56,092
West North Central	156	608	2,316	6	3,389	4,024	5,220	15,719
South	744	2,691	11,552	564	23,853	36,300	14,693	90,397
South Atlantic	691	2,222	4,753	564	13,310	15,355	3,929	40,824
East South Central	41	240	3,380	---	1,747	2,855	3,815	12,078
West South Central	12	229	3,419	---	8,796	18,090	6,949	37,495
West	2,052	7,639	9,651	805	101,372	33,226	80,613	235,358
Mountain	491	192	1,354	278	4,802	4,233	5,761	17,111
Pacific	1,561	7,447	8,297	527	96,570	28,993	74,852	218,247

Source: U.S. Office of Education, Vocational and Technical Education: Annual Report, Fiscal Year, 1966 (Washington: U.S. Government Printing Office, 1968).

Table V

Percent Distribution of Enrollment by Program
Within Region, Fiscal Year 1966

Area	Agriculture	Distributive	Health	Home Economics	Office	Technical	Trade and Industry	Total
United States	1.3%	3.6%	8.2%	.6%	37.5%	22.6%	26.2%	100.0%
Northeast	4.7	4.0	15.7	1.4	35.4	33.5	5.3	100.0
New England	2.1	.7	21.7	---	24.3	37.3	13.9	100.0
Middle Atlantic	5.4	4.8	14.2	1.8	38.2	32.5	3.1	100.0
North Central	1.4	5.1	11.6	.9	34.2	22.0	24.8	100.0
East North Central	1.5	5.5	10.7	1.2	37.7	21.0	22.4	100.0
West North Central	1.0	3.9	14.7	.0	21.6	25.6	33.2	100.0
South	.8	3.0	12.8	.6	26.4	40.1	16.3	100.0
South Atlantic	1.7	5.4	11.6	1.4	32.6	37.7	9.6	100.0
East South Central	.3	2.0	28.0	---	14.5	23.6	31.6	100.0
West South Central	.0	.6	9.1	---	23.5	48.3	18.5	100.0
West	.9	3.2	4.1	.3	43.1	14.1	34.3	100.0
Mountain	2.9	1.1	7.9	1.6	28.1	24.7	33.7	100.0
Pacific	.7	3.4	3.8	.2	44.3	13.3	34.3	100.0

Source: Table Four.

For the United States as a whole, the average occupational enrollment per institution was 431.9 students (see Table VI). However, without the very high per institution enrollment in the Pacific States (1,044.2), this average drops to 274.0. The averages in the West North Central and

Table VI

Enrollment Per Institution, by Region,
Fiscal Year 1966

Area	Number of Institutions	Postsecondary Occupational Enrollment	Average Enrollment Per Institution
United States	1,020	440,491	431.9
Northeast	147	42,925	292.0
New England	25	8,711	348.4
Middle Atlantic	122	34,214	280.4
North Central	269	71,811	267.0
East North Central	151	56,092	371.5
West North Central	118	15,719	133.2
South	335	90,397	269.8
South Atlantic	173	40,824	236.0
East South Central	64	12,078	188.7
West South Central	98	37,495	382.6
West	269	235,358	874.9
Mountain	60	17,111	285.2
Pacific	209	218,247	1,044.2

Source: Tables I and IV

East South Central States are below 200 per institution; between 200 and 300 in the Middle Atlantic, South Atlantic and Mountain States; and between 300 and 400 in New England, the East North Central and West South

Central. These figures suggest that the institutions providing post-secondary occupational education are not being fully utilized. However, it must be born in mind that only 289 of the 1,020 institutions are devoted solely to postsecondary occupational education. The remaining 731 are providing either other postsecondary education (community or junior colleges and universities or colleges) or occupational education at the secondary level (combination secondary-postsecondary vocational technical schools), as well as postsecondary occupational programs.

The data from these sources (programs reporting to the Division of Vocational and Technical Education) for more recent periods are not yet available. However, there are 1968 data available on the higher education enrollments in occupational programs below the baccalaureate level which are comparable. The total enrollments, in Table V I I, should include all public institutions involved in postsecondary occupational programs with exception of the combination secondary-postsecondary vocational technical schools. While comparisons with the 1966 data must be drawn with caution since the data are not identical, it is well to note the apparent increase in enrollment in the two-year period. Nationally, the 1968 enrollments are 22.5 percent above the 1966 figures. There are, however, some more dramatic indications in looking at the various geographic areas. The most obvious points are the extremes of New England and the West South Central States. In 1966, the New England States had the smallest absolute enrollment but with a two-year increase of 203.6 percent, the enrollment is near the national average in terms of proportion

Table VII

Opening Fall Enrollment in Occupational Programs
in Public Institutions of Higher Education,
and Estimated Potential Population,
by Region, 1968

Area	Estimated 18-22 Year Old Population (1,000's)	Fall Enrollment in Occupational Programs	Enrollment Per 100,000 Potential Population	Apparent Rate of Increase: 1966 to 1968
United States	16,771	539,819	3,218.8	22.5%
Northeast	3,684	60,849	1,651.7	41.8
New England	904	26,450	2,925.9	203.6
Middle Atlantic	2,780	34,399	1,237.4	.5
North Central	4,495	108,603	2,416.1	51.2
East North Central	3,174	88,295	2,781.8	57.4
West North Central	1,321	20,308	1,537.3	29.2
South	5,660	109,155	1,928.5	20.8
South Atlantic	2,749	68,397	2,488.1	67.5
East South Central	1,211	12,653	1,044.8	4.8
West South Central	1,700	28,105	1,653.2	-25.0
West	2,932	261,212	8,909.0	11.0
Mountain	714	18,716	2,621.3	9.4
Pacific	2,218	242,496	10,933.1	11.1

Source: Marjorie Chandler, Opening Fall Enrollment in Higher Education, 1968: Part B-Institutional Data (Washington: U.S. Government Printing Office, 1969).

of the potential population. The apparent decrease of 25 percent in the West South Central States places them at about one-half the national figure of proportion of potential population. The Pacific States had a moderate increase of 11.1 percent but this seems reasonable in light of the extent to which the potential population is involved. The East North Central and South Atlantic States had sizeable increases (57.4 percent and 67.5 percent, respectively); the West North Central a moderate 29.2 percent; and the remaining areas had little or no increase (less than one percent in the Middle Atlantic to 9.4 percent in the Mountain States).

While the increases in enrollment are, in some cases, notable, the total situation of enrollment as a proportion of the potential population indicates the probable need for much more growth. Nationally, just over three percent of the potential population is enrolled, and the figure is this high only because of the Pacific States large enrollment at a rate of 10.9 percent of the potential. (The Pacific States account for about 13 percent of the potential population and almost 45 percent of the total enrollment.) The figures for the Middle Atlantic and East South Central States are just over one percent and are around two to three percent for the remaining regions. While part of this potential population is enrolled in degree programs (35 to 40 percent), less than half of these are likely to complete such programs. This means that a great majority of young people are entering today's labor market with little or no job entry preparation at the postsecondary level provided by public institutions. Certainly some of these receive training through proprietary

institutions which offer occupational training. These proprietary institutions have sizeable enrollments in the business education fields and there is the belief that the majority of people receiving secretarial training are getting this training in proprietary institutions. However, the total probably does not appreciably alter the size of the potential population available to the public institutions.

In 1968 there were slightly more than a half million students in public institutions of higher education pursuing occupational programs. As with higher education in general, a majority of these students were male (61.8 percent), with very little regional variation in the sex ratio. In the Pacific States, 57.3 percent of the students were male and in the New England and West South Central States, 71.0 percent. The other seven areas ranged between 60.1 percent and 67.6 percent (see Table VIII). There is more variation among the regions in the proportion of students who are enrolled as part-time students. Nationally, 54.0 percent of the students are enrolled on a part-time basis, but for the regions this ranges from 28.3 percent in the East South Central States to 63.3 percent in the Pacific States, followed by the Middle Atlantic States at 61.4 percent. New England and the East North Central, at 51.0 percent and 54.7 percent are near the national figure, with the remaining four areas ranging between 34.3 percent and 40.8 percent. The percent of first-time students who are part time is considerably lower than the percent of all students who are part time. This is true nationally as well as in all but one of the areas (the Mountain States). The data do not permit an adequate

Table VIII

Sex and Attendance Status of Students
in Occupational Programs in Public
Institutions of Higher Education
by Region, Fall 1968

Area	Male		Female		Total	Percent Male	Percent Part Time
	Full Time	Part Time	Full Time	Part Time			
United States	158,578	175,249	89,758	116,234	539,819	61.8%	54.0%
Northeast	18,127	22,223	8,129	12,370	60,849	66.3	56.9
New England	9,159	9,630	3,804	3,857	26,450	71.0	51.0
Middle Atlantic	8,968	12,593	4,325	8,513	34,399	62.7	61.4
North Central	35,371	36,787	17,929	18,516	108,603	66.4	50.9
East North Central	26,902	32,807	13,062	15,524	88,295	67.6	54.7
West North Central	8,469	3,980	4,867	2,992	20,308	61.3	34.3
South	44,681	26,450	24,071	13,953	109,155	65.2	37.0
South Atlantic	27,106	16,335	15,516	9,440	68,397	63.5	37.7
East South Central	5,591	2,156	3,487	1,419	12,653	61.2	28.3
West South Central	11,984	7,959	5,068	3,094	28,105	71.0	39.3
West	60,399	89,789	39,629	71,395	261,212	57.5	61.7
Mountain	7,035	4,205	4,039	3,437	18,716	60.1	40.8
Pacific	53,364	85,584	35,590	67,958	242,496	57.3	63.3

Source: Marjorie Chandler, op. cit.

explanation for this difference, though the two most obvious possibilities should be examined. These are: (1) part-time students are more likely to continue in programs than are full-time students, or (2) after initial enrollment full-time students are likely to change their status to part time, due to finding work, or other reasons. A third possibility, that of marked change in the characteristics of students, seems less likely than the other possibilities.

There has been a very limited amount of work done on the characteristics of students in postsecondary occupational programs or those planning to pursue such programs. A study of 3,117 high school students in the State of Washington, done in 1965-66, does provide some interesting information on those planning on some form of postsecondary occupational education.[5] On virtually all of the characteristics examined, those students planning on some postsecondary occupational programs constitute a "middle ground" between the college bound and those planning no education beyond high school. In the high school experience itself, those planning on occupational education have been academically more successful than the "high school only" group, but less successful than the college bound group; they were more active in and satisfied with their high school life than the "high school only" but less than the college bound; and they have higher academic self images than the "high school only" but lower than the college bound. High school has not completely alienated those planning on postsecondary occupational programs, but they apparently are not seeking education for its own sake and do

not want to extend their education beyond the time required for a practical, applied program. On the other hand, those who plan no education beyond high school, not even an occupational program, can be seen as those for whom the educational experience has been one of limited or no reward and one which they do not plan on extending any longer than necessary.

The students planning on postsecondary occupational programs also represent "middle ground" with regard to family backgrounds and the characteristics of their friends. As would be expected, the college bound represent the highest status in terms of family income, parental education and father's occupation; the "high school only," the lowest. This, of course, raises the question of the financial ability of students to pursue postsecondary occupational or college programs. Realistically, students whose families can offer no financial assistance and students whose families expect and need financial assistance from the student cannot make plans which involve financial commitments.

There is generally perceived support in the attitudes of friends of those planning postsecondary occupational programs. They have fewer friends who have dropped out of school than do the "high school only," but more than the college bound. Their friends were more likely to have positive attitudes toward more education than the "high school only," less likely than the college bound. As is well known, this phenomenon is circular in that one selects friends who have attitudes similar to one's own and in turn the friends' attitudes influence and reinforce one's own attitudes. Certainly the attitudinal environment in which

a student makes his post high school plans cannot be ignored. However, it is well to bear in mind that this is not a simple "cause and effect" relationship.

As was pointed out earlier, students have varying capacities and needs for education beyond the high school and they make plans under varying family background and social contexts. Postsecondary occupational programs provide an additional point--between stopping with a high school education and pursuing a college degree--which can enter into student plans. However, knowing that the school experience, family background and social environment affect plans is only a beginning. Much more information is needed on the relative contribution of all of these factors and their individual contributions under varying conditions of other variables.

While it is probably normal for most students entering postsecondary occupational programs to come directly from high school, there are two additional sources which cannot be disregarded. Though they are not being used to the extent they should be, postsecondary occupational programs probably represent a logical answer to a large number of the thousands who start but never finish college. A partial college education offers limited job entry assistance and no doubt many college dropouts do make use of the one- and two-year programs available. Data on the percent of postsecondary enrollment previously in degree programs and the percent of degree program withdrawals who enter postsecondary occupational programs are not available. This information could be most useful, particularly for counseling done at the time of withdrawal from college.

A second potential source of students is industry itself. For many people, it is necessary to have some "real world" work experience before a satisfactory plan for the future can be made. In addition, work experience is frequently the best way for a person to discover what he does not know and what he needs to learn. Often industry encourages its employees to pursue educational programs which will increase their usefulness to industry, at times to the point of paying for the cost of the program. It is rare to find an industry which will not be going through some technological modifications and equally rare to find employees capable of full production under new circumstances without some additional training or education. As with the college dropout, data on the extent to which this represents a source of students are not available.

The Outcome

In 1966-67, the public institutions of higher education in the United States conferred over 70,000 awards for the completion of occupational programs below the baccalaureate level (see Table IX). Almost 85 percent of these were for programs of at least two years, but less than four years, duration. Only in the health occupations was there a significant proportion of one-year programs and even here the figure was only 32 percent. Within certain specific occupational programs (forestry, dental assistant, and practical nursing), there were more one-year than two-year awards, but the predominant pattern was for the longer period. (For specific occupational programs under each of these categories, see Table X).

Table IX

Formal Awards in Public Institutions of Higher Education in Organized Occupational Curriculums, By Length of Program Sex and Curriculum Category, 1966-67

Curriculum	Two But Less Than Four Years			One But Less Than Two Years			Total		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
A. Engineering	14,147	13,905	242	1,851	1,791	60	15,998	15,696	302
B. Science	1,856	1,711	145	349	346	3	2,205	2,057	148
C. Health	10,099	2,888	7,211	4,821	198	4,623	14,920	3,086	11,834
D. Business	16,320	7,726	8,594	2,327	613	1,714	18,647	8,339	10,308
E. Other	20,112	11,088	9,024	1,979	1,449	530	22,091	12,537	9,554
Total	62,534	37,318	25,216	11,327	4,397	6,930	73,861	41,715	32,146

Source: M. Jean Bunkman, Associate Degree and Other Formal Awards Below the Baccalaureate, 1965-66 and 1966-67 (Washington: U.S. Office of Education, National Center for Educational Statistics, 1969).

Table X

Fields of Specialization, by Curriculum Category, 1966-67
(Based on Formal Awards for Organized Occupation
Curriculums of at Least One But Less Than Four Years)

A. Engineering Related

- Aeronautical technology
- Architectural and Building technology
- Chemical technology
- Civil Technology
- Electrical and/or electronics technology
- Industrial technology
- Mechanical technology
- Other

B. Science Related

- Agriculture
- Forestry
- Scientific data processing
- Other

C. Health

- Dental assistant
- Dental hygiene
- Dental laboratory assistant

Health (continued)

- Medical or biological laboratory technician
- Nursing, practical
- Nursing, associate degree
- Nursing, diploma program
- X-ray technology
- Other

D. Business Related

- Business and commerce
- Secretarial

E. Other

- Educational
- Fine, applied and graphic arts
- Home economics
- Bible study or religious work
- Police technology or law enforcement
- Miscellaneous

As would be expected, there were significant sexual differences in the distribution of awards, the males dominating engineering and science, and the females, health and, to a lesser extent, business. For males, in both one- and two-year programs, business and commerce was the most frequent program, followed by industrial technology and mechanical technology in the one-year programs and electrical and/or electronics

technology and, again mechanical technology at the two-year level. For females, at the one-year level practical nursing is the most frequent program, accounting for over 45 percent of the one-year awards to females. This is followed by the one-year secretarial and dental assistant programs. At the two-year level, the secretarial program is the most frequent selection followed by the nursing diploma program, and business and commerce. These distributions suggest that enrollments reflect the traditional sexual identification of occupations which, though perhaps not rational, is probably realistic in terms of employment opportunities.

There are no comprehensive data readily available on the extent to which the wide array of potential programs is represented at individual institutions. The data on awards indicate that there is sufficient breadth in the types of programs which can be offered, but a casual examination of postsecondary institutions indicates a great deal of variation in the number of different offerings available to students. Frequently institutions which offer postsecondary occupational education may have only a half dozen programs or, in some cases, less. On the other hand, there are many institutions which offer a very full range of programs at various levels. On the basis of limited information, there does not appear to be a consistent pattern to these variations. The differences can be observed within states, or within regions, as well as for the country as a whole. In viewing this apparent variation in the availability of programs it must be remembered, as has previously

been indicated, that often those institutions offering postsecondary occupational education have multiple functions and pressures to fulfill other obligations (e.g., academic programs, secondary vocational programs, etc.) may require these institutions' placing less emphasis on the postsecondary occupational programs than seems desirable from the point of view of need.

Enrollment figures for programs and institutions can be deceptive in that entry into a program in no way assures that a student will remain until the intended knowledge and skills have been acquired. In the period 1966-68 in Pennsylvania community colleges, 58 percent of the students who entered associate degree or college parallel programs completed their programs or successfully transferred to institutions of higher education.[7] This figure compares favorably with the completion rate of traditional four-year institutions. However, as this population was not "postsecondary occupational" students, the data can be used only as an indication of two-year schools' success. In Louisiana, the most recent data available indicate that only 16 percent of those who start postsecondary occupational programs complete these programs.[8] It must be remembered that the primary motivation of students in occupational programs is probably very concrete and not easily associated with a certificate, diploma, or degree. The skill level sought by the student may be obtained without completing, in the insitutions' terms, the program. "This means then, that these people, while entering (an occupation) prior to the completion of a full program, have completed a program; a program which they have chosen for themselves."[9]

Systematic follow-ups of dropouts from postsecondary occupational programs are not available. The available information suggests that one of the main reasons for noncompletion is the availability of employment opportunities in the occupation for which students are training. Evidently in those occupations for which the demand is very great, employers find it economical to hire people with partial training, completing their training on the job while simultaneously getting some production. It is impossible to say, with the data available, what the long range implications of this practice are for the students. It may or may not adversely affect careers. It seems, however, that the practice should be carefully analyzed and efforts undertaken to establish articulation between institutional and on-the-job training. It is possible that institutional training is excessive and that the skill level employers prefer is attained prior to completion. For some occupations it may be necessary under all circumstances for employers to provide some initial training to new employees regardless of prior formal training. The special characteristics or processes of an individual business may make this so. Under such circumstances employers may find it easier to take students with incomplete training, with less to "unlearn," and provide the final stages of training at the same time local practices are being taught. If this is in fact the case then there are obvious implications for institutional programs and it should be possible to make better use of institutional resources to the end of better serving students and employers.

There are some data available on the characteristics of people who left MDTA institutional training prior to completing programs.[10] While

this would not be representative of postsecondary occupational students who do not complete programs, the information may provide some indications of the characteristics of those likely to withdraw from programs. Among MDTA trainees, males were more likely to withdraw than females and nonwhites were more likely to withdraw than whites. In 1968, 55 percent of the trainees were male but 66 percent of the withdrawals were male. Nonwhites made up 38 percent of the total enrollment, but 47 percent of the withdrawals. In addition, younger trainees and those with less previous education were more likely to withdraw. Fifty-three percent of the 1968 enrollment had less than a 12th grade education, but 65 percent of the withdrawals were in this category. Persons 21 years old and younger made up 38 percent of the enrollment but 46 percent of the withdrawals. It would not be in order to attempt interpretation of these data, particularly in light of the relatively small magnitude of difference. It is interesting to note that in 1968, while the overall completion rate for institutional trainees was 75 percent, for on-the-job trainees it was 85 percent. It is very likely that there are some people who need and should have occupational training who, for whatever reason, are not favorably disposed to the traditional education setting. There are important implications in this for postsecondary occupational programs.

While the completion rate may be less than desired in some cases, over 50 percent of those who do complete programs are employed either in the occupation for which they were trained, or a related occupation (see Table XI). In 1967, 63.7 percent of those completing programs were

Table XI

Follow-Up of Postsecondary Occupational Education
Enrollees, Fiscal Year 1967
(Status of Persons in October 1967)

	Program							
	Agriculture	Distribution	Health	Home Economics (Gainful)	Office	Technical	Trades and Industry	Total
Number Completed Program	6,334	7,111	27,882	3,148	39,614	21,111	35,817	141,017
Percent Available for Placement	71.0%	47.4%	83.7%	69.7%	53.7%	59.2%	63.5%	63.7%
Percent of Those Available for Placement Place in Field Trained or Related	90.4%	73.5%	95.2%	83.2%	81.7%	92.4%	85.6%	87.8%

Source: Division of Vocational and Technical Education, "Fact Sheet: Vocational Education - Fiscal Year 1967 Data," (Washington: U.S. Office of Education, October, 1968).

available for placement. A majority of those not available for placement were continuing their education with a sizeable proportion entering the armed forces. Of those available for placement, 87.8 percent were employed either in the occupation for which they were trained or in a related occupation. For agriculture, health and technical occupations the figure is over 90 percent. Those trained in the distribution occupations are the least likely to be available for placement (47.4 percent) and, if available, the least likely to be employed in the occupation for which trained or a related occupation (73.5 percent). The general picture, however, indicates that training is realistic in terms of employment opportunities and the likelihood that trainees will accept appropriate employment when available.

Further Data Needs

Postsecondary occupational education in the United States can be seen as still being in its formative stages. It is still susceptible to modification and change without the resistances that might be found in more tradition-bound, well-entrenched programs. This will not be the case indefinitely and if reasons for modifications are known, efforts toward improvement should start as soon as possible. However, there are many gaps in the information required for a rational approach to modification.

The variations in the systems which the states have developed should be examined in order to determine if some organizations of postsecondary occupational programs are superior to others. This is not meant to imply

that there should be, or is, a single, best way of organizing such programs, but that possibility should not be ignored. The various systems should be examined in terms of the extent to which they are able to provide a full range of programs, which are likely to be of some value to the varied parts of their potential populations. Concentrations in types of programs--either at the highly technical end or the semi-skilled labor end--are not likely to be of as much service as a spread throughout the range. The system also should be examined to determine if the method of organizing programs causes, or is related to, selectivity in types of students. It is possible that the nature of organization will affect the appeal the program has for students who are oriented to the "higher education" value of our culture as opposed to those who have been "alienated" by formal education. If this is the case, the effects should be known with the recognition of the possible limitations organizational factors may have on the characteristics of populations served.

While the information available indicates that cost factors should not be a significant negative factor in the availability of postsecondary occupational education, limited data are available on the extent to which financial aid programs are utilized and the characteristics of students using aid. Some information is needed on the extent to which potential students are aware of the possibilities for financial assistance. The data indicate that there are many people who could be but are not enrolled in postsecondary occupational programs. Certainly it is possible that one of the reasons for this is lack of information or inadequate information on such programs.[11]

More complete data are needed on the characteristics of students enrolled in postsecondary occupational programs, specifically their demographic characteristics (age, race, sex), social characteristics and academic backgrounds. While the idea of "universal opportunity" is one of the forces behind the development of postsecondary occupational programs, it cannot be determined from enrollment statistics whether we are approaching this ideal or not. Further, data are needed on the extent to which these programs are seen as an attractive alternative for those who withdraw from degree programs. It would seem unfortunate if our total educational system does not provide some alternative for those who attempt but do not complete degree programs. Finally, information is needed on the extent to which students are drawn from industry itself. The normal route which one envisions is enrollment immediately after high school. The sizeable part-time enrollments certainly indicate that many students are working full time while taking courses. This of course does not indicate that the industrial employers are responsible for their seeking training nor that the training constitutes attempts on the part of students to advance in their present occupations. Certainly this is not always the case but more information is needed on the number and characteristics of students following various avenues of entry to these programs.

Selected data indicate that the completion rate in some of these programs may be alarmingly low. More precise information on completions is needed, and the relationship of completion rate to organizational structure and type of program. Studies should be conducted on the

characteristics of students who do not complete programs, their reasons for withdrawing and the effect withdrawal has on their subsequent employment experiences. If it is assumed that these programs are necessary and sufficient for job entry, then institutions which do not hold a student to completion have not fulfilled their potential service to the student or the areas they are designed to serve.

Occupational education, perhaps more than any other type of education, should make a readily observable difference in the life of the person who completes a program. It is intended to be practical, applied and a direct service to students and industry. Extensive follow-up studies on the career patterns of graduates from these programs should be made. Their training should make them both better workers and better adjusted workers, and it should provide them with the bases for a progression in an occupation hierarchy.

NOTES

[1]U. S. Office of Education, Vocational and Technical Education: Annual Report, Fiscal Year 1966 (Washington: U. S. Government Printing Office, 1968), p. 82.

[2]Throughout this report the United States is defined to include the fifty states and the District of Columbia, but does not include the Commonwealth of Puerto Rico nor the outlying areas under U. S. jurisdiction. The regions are defined according to the U. S. Bureau of the Census classification as follows:

I. Northeast

   A. New England: Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut.

   B. Middle Atlantic: New York, New Jersey, Pennsylvania

II. North Central

   A. East North Central: Ohio, Indiana, Illinois, Michigan, Wisconsin

   B. West North Central: Minnesota, Iowa, Missouri, North Dakota, South Dakota, Nebraska, Kansas

III. South

   A. South Atlantic: Delaware, Maryland, District of Columbia, Virginia, West Virginia, North Carolina, South Carolina, Georgia, Florida

   B. East South Central: Kentucky, Tennessee, Alabama, Mississippi

   C. West South Central: Arkansas, Louisiana, Oklahoma, Texas

IV. West

   A. Mountain: Montana, Idaho, Wyoming, Colorado, New Mexico, Arizona, Utah, Nevada

   B. Pacific: Washington, Oregon, California, Alaska, Hawaii

[3]Kenneth A. Simon and W. Vance Grant, Digest of Educational Statistics (Washington: U. S. Government Printing Office, 1968).

[4]U. S. Office of Education, Financial Aid for Higher Education (Washington: U. S. Government Printing Office, 1968).

[5]Roy T. Bowles and Walter L. Slocum, "Social Characteristics of High School Students Planning to Pursue Post High School Vocational Training," (Washington: U. S. Office of Education, Bureau of Research, 1968).

[6]Maurice R. Graney, The Technical Institute (New York: The Center for Applied Research in Education, Inc., 1964), Ch. VI, "The Individual and the Technical Institute," pp. 87-111.

[7]Pennsylvania Bureau of Community Colleges, "Selected Student Information: Community Colleges," (Harrisburg: Department of Public Instruction, Commonwealth of Pennsylvania, January, 1969).

[8]Communication from Mr. Paul B. Brown, Director, Research Coordinating Unit, Louisiana State Department of Education, Baton Rouge, June 20, 1969.

[9]Communication from Dr. B. E. Childers, Executive Secretary, Committee on Occupational Education, Southern Association of Colleges and Schools, Atlanta, Georgia, September 19, 1969.

[10]U. S. Office of Education, Education and Training: A Chance to Advance (Washington, U. S. Government Printing Office, 1969).

[11]A study related to this problem is now underway at the Center for Occupational Education, North Carolina State University, under the direction of the author.

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